

Major Pathologic Findings and Probable Cause of Mortality in Wildlife Belonging to Cervidae Family of Wayanad District, Kerala, India From 2006 To 2013



Veterinary Science

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ABSTRACT

Knowledge of mortality factors is important for developing strategies to conserve the precious wildlife. So in the present study, major pathologic findings and probable causes of death in Cervidae family were determined by performing a complete necropsy. Over a period of eight years (from January 1st 2006 to 31st December 2013), 26 animals representing four species were examined. Of these, three (11.54 %) cases were in advanced stage of decomposition and hence unfit for examination. Three (11.54 %) numbers likely died of infectious disease and 20 (76.92%) of noninfectious disease. Septicaemia (Staphylococcosis) and pulmonary infections (pasteurellosis) contributed to the infectious diseases. Non-infectious diseases include traumatic wound and subsequent septicaemia and toxemia (57.69 %), capture myopathy (15.38 %) and starvation (3.85%).

Introduction

Wildlife comprises of all living organisms (plants, animals, microorganisms) in their natural habitats which are neither domesticated nor tamed. But in the strict sense, it includes undomesticated mammals, reptiles, birds and fishes etc. which are generally hunted (Singh, 2005). India has very rich and diverse wildlife resources.

India possess nine different species of deer such as Musk deer, Barking deer, Spotted deer, Hog deer, Dancing deer, Sambar deer, Thamin, Hanglu and Sangai (Hosetti, 2005). These are found in large numbers and commonly hunted for meat and fur. Due to indiscriminate hunting and habitat deterioration, their number also found decreasing. For proper conservation of a species, one must know about the probable causes of mortality of that species. So the present study aimed to find out the major diseases and probable cause of mortality in wildlife belonging to Cervidae family in Wayanad district of Kerala.

Materials and methods

The present study includes 26 animals representing four species of Cervidae family brought for post-mortem examination to the Department of Veterinary Pathology, College of Veterinary & Animal Sciences, Wayanad, Kerala, India, over a period of eight years (from January 1st 2006 to 31st December 2013). During post-mortem examination, internal organs were collected for bacteriological examination. Cause of death was ascertained based on gross and bacteriological examination. After determining the probable cause of death, it was classified as infectious and noninfectious. Both causes were further sub-classified based on characteristics.

Results and discussion

Of the 26 samples submitted, three (11.54 %) were in advanced stage of decomposition and hence unfit for examination. Rest 23 cases were examined grossly and bacteriologically. Of these, Three (11.54 %) likely died of infectious disease and 20 (76.92%) of noninfectious disease. Septicaemia (caused by Staphylococcus species) and pulmonary infections (caused by pasteurella species) contributed to the infectious diseases. Non-infectious diseases include traumatic wound and subsequent septicaemia and toxemia (57.69 %), capture myopathy (15.38 %) and starvation (3.85%). Data on the animals and cause of death are summarized in Fig. 1.

Main hurdle in making the diagnosis of the disease particularly in free range wild life is advanced autolysis as the carcass

remain undiscovered for extended periods of time (Sharma, 2014). In the present study, about 11.54 % were in stage of advanced autolysis.

Non-infectious causes contribute to the death of 76.92 % of animals. Gazolla *et al.* (2005) studied the wolf-ungulate interactions in western Alps (Italy) for a period of three years and reported that Cervids were the preferred prey (74.2%) for the wolves and constituted predominant food items both in winter and summer. Here also, the most common cause of death in Cervidae is the predation. In the present study, Trauma (53.85%), including several bite injuries and resultant toxemia, shock or concurrent bacterial septicemia was the most common cause. Among different pathological conditions, diagnosed in various species of wildlife by Sharma *et al.*, (2014) traumatic injuries were highest and recorded as 47.1%. Cause of mortality of four animals was capture myopathy. Capture myopathy is primarily an iatrogenic disease that affects a wide range of vertebrate species, though ungulates seem to be particularly susceptible (Williams & Thorne, 1996). It can be characterized by metabolic acidosis, muscle necrosis, and myoglobinuria (Paterson 2007) and may be brought on by the stress of capture and handling. In the present study, one death was happened while tried to save from a human habitat. Death due to starvation was rare and found to be only one. That was a fawn of a mouse deer and abandoned by some or other reasons.

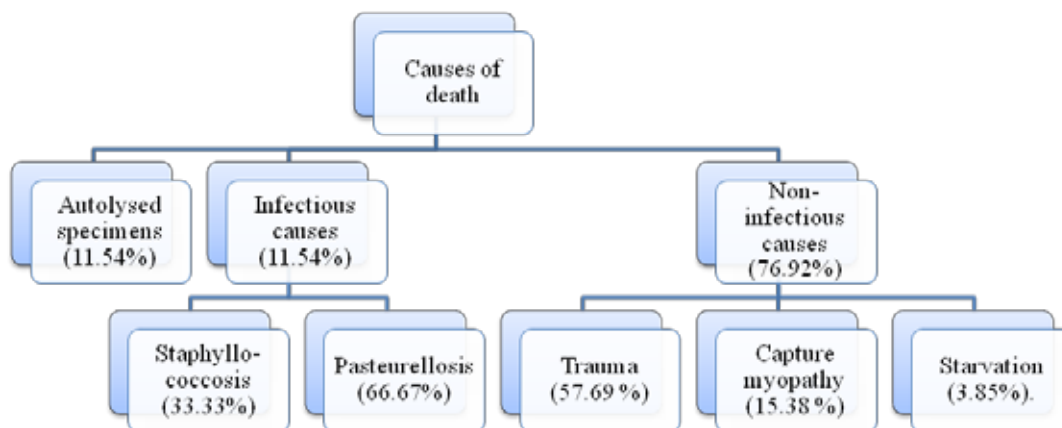
Staphylococcosis and Pasteurellosis were the two infectious causes and it amounts only 11.54%. Death reported due to the infectious disease is rare. But this may be due to the inaccessibility of the carcasses from the depth of the forest.

Gastrointestinal parasites were present in small numbers in all carcasses that had an intact gastrointestinal tract but no deaths were attributed to parasites.

Summary

A definitive cause of death was determined for 23 of the 26 submitted cases. Although the absence of consistent use of toxicological analysis and molecular methods for diagnosis of autolysed specimens decreases the conclusiveness of the findings, this study has broad implications in establishing baseline data on causes of death of wildlife population in Wayanad District for future studies and for the detection of emerging diseases.

Figure 1: Cause of death based on gross and bacteriological examination of 23 wild animals belonging to Cervidae family in Wayanad District, Kerala, India.



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